The greatest common divisor of these values is $1\frac{2}{3}\frac{5}{9}\frac{0}{}$.

$\therefore \$1\frac{2}{3}\frac{5}{9}\frac{0}{} = \$32\frac{2}{3}\frac{}{9}$ is the highest par value of each share in order that each may have whole shares and maintain his present interest.

A will then have 85 shares, B, C, D, E and E each 61 shares. Total number of shares in corporation, 624.

322. Proposed by THEODORE L. DeLAND, Treasury Department, Washington, D. C.

Take six consecutive prime numbers, as 53, 59, 61, 67, 71, and 73, and find the least whole number such that if it be divided by 59 the remainder will be 53, if it be divided by 67 the remainder will be 61, and if it be divided by 73 the remainder will be 71, and show that this least whole number and the succeeding consecutive whole numbers that will fulfill this condition as to divisions and remainders are in arithmetical progression; and also show whether or not this is a general law for n consecutive prime numbers; and if there be such a general law whether or not that general law will lead to a general law for the finding of prime numbers.

Solution by J. SCHEFFER, A. M., Kee Mar College, Hagerstown, Md.

Let x=the number. Then $\frac{x-53}{59}$, $\frac{x-61}{67}$, $\frac{x-71}{73}$=whole number.

Proceeding in the usual way, we get $x=27665-288569n$.

Therefore 27665 is the smallest whole number satisfying the condition. The succeeding numbers we get by putting $n=-1, -2, -3, \ldots$ which, of course, form an arithmetical progression the common difference of which is 289569. This will always be the case for any number of consecutive prime numbers, though it will not lead to a general law for the finding of prime numbers.

GEOMETRY.

347. Proposed by W. J. GREENSTREET, M. A., Marling School, Stroud, England.

ABC is a triangle, and D, E, F are the mid points of the arcs of its nine-point circle cut off by BC, CA, AB, respectively. The inscribed circle touches these sides at X, Y, Z. Are the lines DX, EY, FZ concurrent? A purely geometrical discussion required.

No solution of this problem has been received.

348. Proposed by W. J. GREENSTREET, M. A., Marling School, Stroud, England.

Two parabolas and a rectangular hyperbola circumscribe a given quadrilateral. Find a relation between the squares of the latera recta of the parabolas and the squares of the perpendiculars from the center of the hyperbola to the axes of the parabolas.

Solution by G. B. M. ZERR, A. M., Ph. D., Philadelphia, Pa.

(1)... $m(x^2+y^2)+2nxy+2px+2qy+r=0$ is the equation of the rectangular hyperbola;

(2)... $(ax+by)^2+2gx+2fy+c=0$ is the equation of one parabola, and

(3)... $(Ax+By)^2+2Gx+2Fy+C=0$ is the equation of the other parabola